

DARK CANYON LAKE



Introduction

Dark Canyon Lake is a small lake on the eastern slope of the La Sal Mountains at the base of Mt Peale. It is located on the boundary between state and private lands. It is located in a heavily forested area at an

elevation of 9,940 feet above sea level. Although it appears that it is a natural lake, there is evidence that the

Characteristics and Morphometry

Lake elevation (meters / feet)	3,033/9950
Surface area (hectares / acres)	2.4/6
Watershed area (hectares / acres)	591 / 1,461
Volume (m ³ / acre-feet)	
capacity	82,611/67
conservation pool	82,611 / 67
Annual inflow (m ³ / acre-feet)	
Retention time (years)	
Drawdown (m ³ / acre-feet)	0
Depth (meters / feet)	
maximum	9.3 / 30
mean	3.4 / 11.1
Length (meters / feet)	183/600
Width (meters / feet)	152/500
Shoreline (meters / feet)	914 / 3,000

Location

County	San Juan
Longitude/Latitude	109 11 51 / 38 27 24
USGS Map	Mount Peale, Utah 1987
DeLorme's Utah Atlas & Gazetteer™	Page 30, A-4-31
Cataloging Unit	Upper Colorado (14030004)

natural drainage from the lake has been impounded by man.

The shore line is approximately divided equally between private ownership and State ownership. The south half of the lake is surrounded by public lands. The main access road over the La Sal Mountains via Geyser Pass passes very near the lake. A road lead directly from it to the lake shoreline. The lake is nestled at the base of the ridgeline of the La Sal Mountains in a very scenic area. The primary use of the lake is for recreational fishing, although

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it is also **classified for culinary, irrigation and**

Limnological Data

Data sampled from STORET site: 595870

Surface Data	<u>1994</u>
Trophic Status	M
Chlorophyll TSI	44.56
Secchi Depth TSI	36.66
Phosphorous TSI	39.37
Average TSI	40.20
Chlorophyll <i>a</i> (ug/L)	4.2
Transparency (m)	5.0
Total Phosphorous (ug/L)	12.0
pH	7.9
Total Susp. Solids (mg/L)	1.5
Total Volatile Solids (mg/L)	2
Total Residual Solids (mg/L)	2
Temperature (°C / °f)	16/61
Conductivity (umhos.cm)	146

Water Column Data

Ammonia (mg/L)	0.08
Nitrate/Nitrite (mg/L)	0.01
Hardness (mg/L)	75.2
Alkalinity (mg/L)	75
Silica (mg/L)	-
Total Phosphorus (ug/L)	24

Miscellaneous Data

Limiting Nutrient	N
DO (Mg/l) at 75% depth	6.4
Stratification (m)	NO
Depth at Deepest Site (m)	8.8

recreation.

Recreation

Dark Canyon Lake is approximately 48 miles southeast of Moab or 14 miles north of La Sal.. From mile post 118 on US-191 (about eight miles south of Moab) turn east on Old Airport Road and follow pass the turnoff to Kens Lake, which should be visible about 11 miles south of Moab, to the La Sal Mountain Loop road. There is a junction approximately 3 miles south of the road to Kens Lake, but continue on past the junction, up Brumley Ridge into the La Sal Mountains, to the Geyser Pass Road approximately 8 more miles. The Geyser Pass Road is a well maintained gravel road that leads southeastly to Geyser Pass (approximately 7 miles). After Geyser Pass turn south on FS-129 which follows the ridgeline past Mount Mellenthin and turns eastward, before Mount Peale, to the lake (approximately 5 miles). Travel over the La Sal Mountains via this route produces some of the most spectacular panoramas of this area. Take the time to stop and enjoy some of these views, especially westward towards Moab and Kens Lake. Continuing on past Dark Canyon Lake on FS-129 will eventually lead you to U-46 and to La Sal, Utah. Approximately 6 miles past the lake is the intersection with FS-208. Turn south and travel for approximately 6 more miles to U-46. Two miles further southwest is the town of La Sal.

The lake is primarily for fishing with some private recreation developed in the area on the private lands to the north. It is possible to launch a boat on the lake, but no improved boat ramp is available and the lake is rather small. Camping is permitted, but in a primitive setting, unless use of private facilities are arranged. The lake is nestled in a forested area at the base of Mount Peale and Mount Mellenthin which provide for unsurpassed scenic beauty.

Watershed Description

The lake is approximate 1 mile below the base of very steep colluvial areas above the timberline associated with Mount Mellenthin and Mount Peale. The area around the lake is still fairly steep, but heavily forested. These mountains develop heavy snowpacks in the winter due to their high elevation, and some of the runoff is stored in Dark Canyon Lake. The main tributary for the area, Dark Canyon Creek passes to the south of the lake. It appears from maps that water could be diverted into the lake, but the naturally drainage from the lake is on the north side. In addition there is a minor inflow of water on the northwest side of the lake too.

The watershed high point, Mount Peale Peak, is 3,877 m (12,721 ft) above sea level, thereby developing a complex slope of 25.1% to the reservoir. The sole inflow is the canal from Mill Creek. Although Dark Canyon Creek

doesn't flow directly into the lake, it was been used to calculate stream gradients in the area. The average stream gradient from the headwaters to the lake is 12.1% (639 feet per mile).

The watershed is composed of high mountains and moderate to steep canyons. Soil composition is approximately 40% rocky, 30% shallow to very shallow stony soils and 30% quartzite bedrock. Exact soil associations have not been determined by the Division of Water Quality.

The vegetation communities are comprised of sage-grass, oak, maple, aspen-fir, and alpine. The watershed receives approximately 76 cm (30 inches) of precipitation annually with a frost-free season of 40 - 60 days at the lake.

Public land use is 100% multiple use and recreation. The major use of the watershed is livestock grazing and recreation.

Limnological Assessment

The water quality of Dark Canyon Lake is considered very good. It is considered to be soft with a hardness concentration value of approximately 75 mg/L (CaCO₃). Although there are no overall water column concentrations that exceed State water quality standards there are reported violations of parameters near the bottom of the lake. These parameters include phosphorus and dissolved oxygen. At various times of the year the hypolimnion of the lake the oxygen deficiencies develop. It may be that anoxic conditions develop during the winter which are reflective of the higher concentrations near the bottom of the lake during the first period of sampling (53 ug/L). In addition there are also some low dissolved oxygen values in the hypolimnion reported during late summer, but they do not appear to be impairing the fishery. Although these exceedences have occurred, it does not appear that the water quality is significantly impaired. It does indicate that some winter monitoring should be conducted to determine if impairments are present during extended ice coverage conditions during the winter.

Current data suggest that the reservoir is currently a nitrogen limited system. TSI

Information

Management Agencies

Bureau of Land Management	539-4001
Grand Resource Area (Moab)	259-8193
Southeastern Utah Association of Governments	
Division of Wildlife Resources	637-3310
Division of Water Quality	538-6146

Recreation

Canyonlands Travel Region (Moab)	259-8825
Moab Chamber of Commerce	259-7531

Reservoir Administrators

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values indicate the reservoir is on the border of oligotrophic to mesotrophic in a state of low productivity. Although the profile of September 24, 1994 does not indicate any stratification, the potential for stratification in the lake does occur. On August 9, 1994 the lake was weakly stratified at a depth of 6 meters when the lake had a maximum depth of 9.3 meters. By September the lake had probably turned over indicative of the uniform conditions. Any stratification present probably is weak due to the size and depth of the lake and the existence of climatic conditions in mixing the lake.

According to DWR no fish kills have been reported in recent years. The reservoir supports a population of brook trout (*Salvelinus fontinalis*), arctic grayling (*Thymallus arcticus*) and rainbow trout (*Oncorhynchus mykiss*). The lake has not been treated for rough fish competition, so populations of native fishes may still be present in the lake. Current stocking reports indicate that DWR stocks the lake with 3,000 rainbow trout and 500 brook trout fingerlings, 500 arctic grayling fry, and 1,000 catchable rainbow trout annually.

Evenness 0.42
Richness 0.34

The flora is dominated by green and red algae indicative of good water quality and low to moderate productivity.

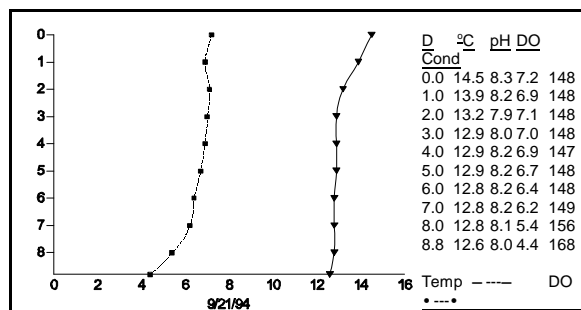
Pollution Assessment

Nonpoint pollution sources are: sedimentation and nutrient loading from grazing, wastes and litter from recreation. Cattle graze in the watershed and around the reservoir.

There are no point pollution sources in the watershed.

Beneficial Use Classification

The state beneficial use classifications include: culinary water (1C), boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).



Phytoplankton in the euphotic zone in August, 1994 included the following taxa (in order of dominance)

Species	Cell Volume (mm ³ /liter)	% Density By Volume
<i>Sphaerocystis schroeteri</i>	9.786	76.27
<i>Quadrigula lacustris</i>	1.112	8.67
<i>Ceratium hirundinella</i>	0.945	7.37
<i>Peridinium sp.</i>	0.361	2.82
<i>Oocystis sp.</i>	0.259	2.02
<i>Dinobryon divergens</i>	0.220	1.72
Unknown spherical chlorophyta	0.139	1.07
Pennate diatoms	0.005	0.03
Centric diatoms	0.004	0.03

Total Cell Volume 12.831

Shannon-Weaver Index 0.91